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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, VAN KIM T

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,016

Applicant(s)

BELCEA, JOHN M.

Examiner

Van Kim T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 11, 13-18, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 7-9, 12, 19-21, and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to communications filed on March 15, 2002.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10-11, 13-18, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallinckrodt et al (US 6,108,561), in view of Honkasalo et al (US 6,219,343).

Regarding claims 1-3, 10-11, 13-15, and 22-23, as shown in Figures 1-9, Mallinckrodt discloses a method for determining a transmission power over a link between a source (Fig. 1: 12, 14, 16, 18, 20; col. 4: line 58 – col. 5: line 34) and a destination nodes (Fig. 1: 22, col. 5: line 35-41) in a ad-hoc wireless network (both source and destination nodes may be mobile, col. 5: line 30-34 and 40-41), comprising: computing path loss in the link (col. 10: lines 54; and col. 11: line 7 – col. 12: line 41); determining a noise factor representative of noise at the destination node based on a level of correctness (col. 10: lines 53-62; and col. 12: line 43 – 50); and calculating at least one of the power level at which the data is transmitted over the link from the source node to the destination node based on the path loss and noise factor (col. 12: line 55 – col. 13: line 8).

Regarding claims 4-6 and 16-18, Mallinckrodt also discloses the path loss and noise factor are computed dynamically as conditions of the link change over time, and the noise factor

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increases or decreases an estimated noise factor based on each of message information for a plurality of messages (Figs. 8-9; cols. 11-12).

However, Mallinckrodt does not call for calculating at least one of the rates at which the data is transmitted over the link.

As shown in Figures 1-4, Honkasalo teaches determining transmit rate for a packet data transmission based calculated power (col. 2: line 52 – col. 3: line 6; and col. 6: lines 2 – col. 7: line 47).

Since it is highly desirable to improve the performance of wireless networks and ensure that each member of the network transmit the smallest power necessary to maintain a good quality link, power control within a network is critical. Power control not only helps prolongs battery life for the mobile units, but also can dramatically enhance the signal-to-interference-plus-noise ration (SNIR) in the system, and thus its error performance and capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Honkasalo's method of determining transmission rate in Mallinckrodt's power control system, motivated by the needs to maintain a good transmission link and preserve mobile units' energy levels.

Allowable Subject Matter

Claims 7-9, 12, 19-21, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

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Claims are considered allowable when reading the claims none of the references of record alone or in combination disclose or suggest the combination limitations specified in the independent claims including a method for determining at least one of a power level and rate at which data is transmitted over a link between source and destination nodes in a wireless ad-hoc communication network comprising calculating at least one of the power level and rate based on the path loss, the noise factor, short term fading experienced by the message and sensitivity of a receiver of the destination node, the short term fading based on a standard deviation of a strength at which the message is received by the receiver of destination node.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Leung (US 6,519,705), Method and System for Power Control in Wireless Networks; Takemura (US 6,243,591), Mobile Communication System; Moulisley et al (US 2002/0028691), Method for the Communication of Information and Apparatus Employing the Method; Blanc (US 6,341,225), Method for Improving Performances of a Mobile Radio Communication System; Zehavi (US 6,496,543), Method and Apparatus for Providing High Speed Data Communications in a Cellular Environment; Choi et al (US 2002/0168993), Updating Path Loss Estimator for Power Control and Link Adaptation in IEEE802.11H WLAN; Lindroth et al (US 5,887,245), Method and Apparatus for Regulating Transmission Power; Sawyer (US 5,634,195),

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System and Method for Setting of Output Power Parameters in a Cellular Mobile Telecommunication System; Jolma et al (US 5,806,003), Method for Adjusting Transmission Power in a Cellular Radio System and a Subscriber Equipment; Esterberg et al (US 6,366,572), Wireless Communication System with Symmetric Communication Protocol; Redi et al (US 2002/0071395), Mechanism for Performing Energy-Based Routing in Wireless Networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Van Kim T. Nguyen whose telephone number is 703-305-7692. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on 703-305-4703. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

vkn
June 15, 2003


KENNETH VANDERPUYE
PRIMARY EXAMINER